

Natural Gas Working Group



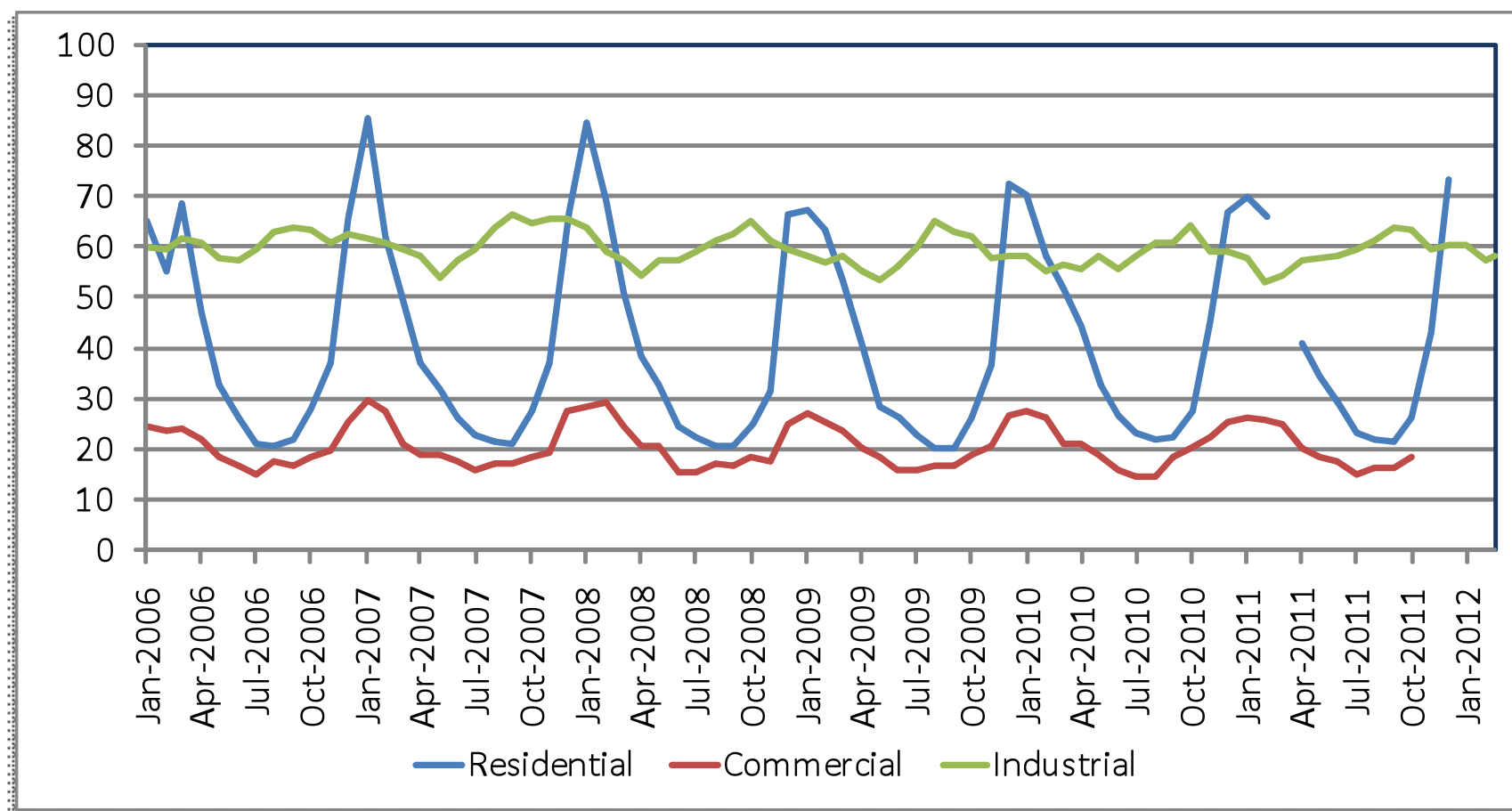
Natural Gas Markets Demand Assessment: Industrial, Commercial, Residential and Electric Power Sector Demand

June 7, 2012

Peter Puglia
California Energy Commission
Electricity Analysis Office
Generation Fuels Unit

Natural Gas Deliveries to California Residential, Commercial and Industrial Consumers, January 2006 – March 2012 (Bcf/month)

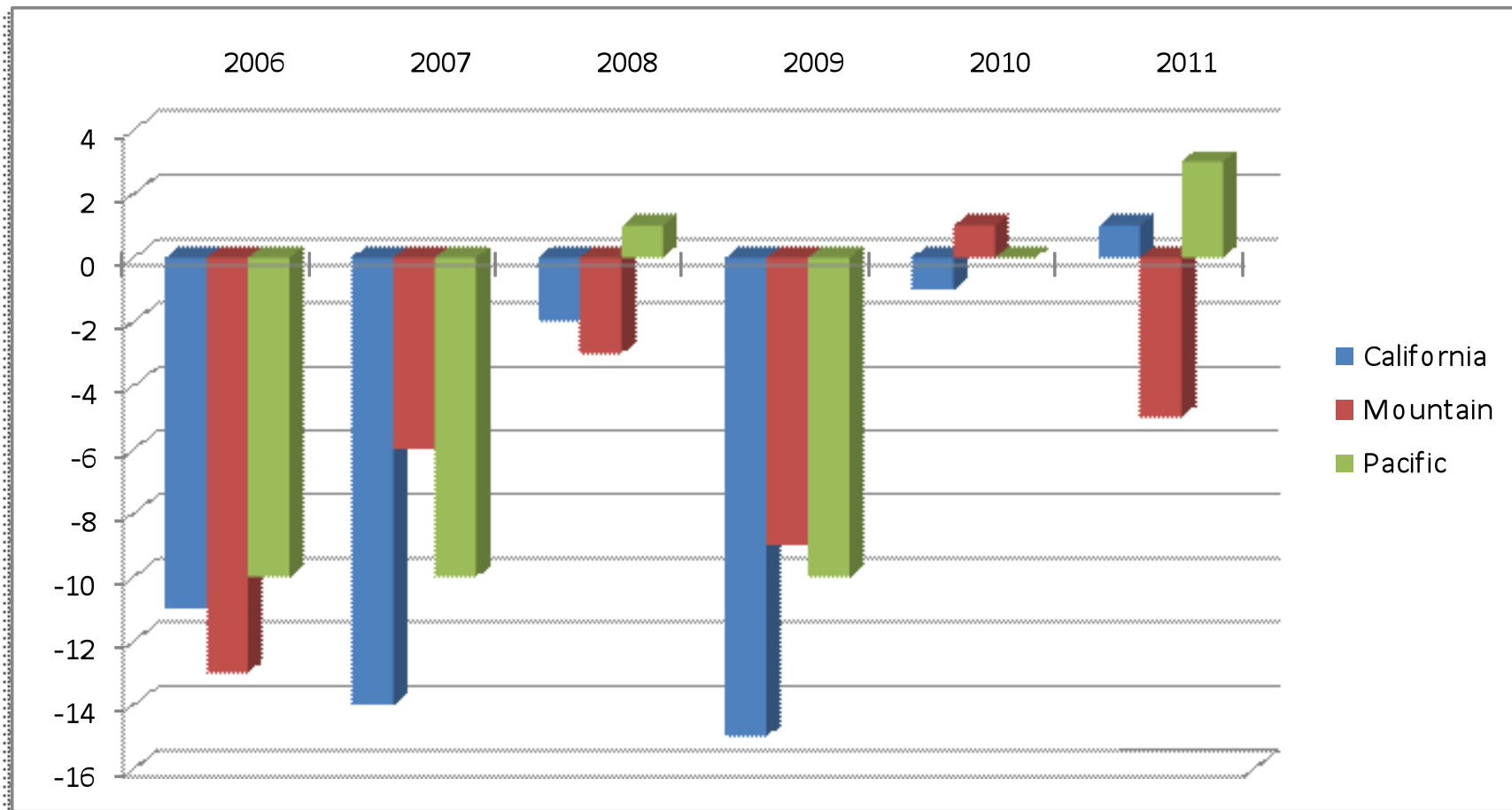
(Source: U.S. EIA May 2012 Natural Gas Monthly)



Note the winter-peaking pattern typical of California's residential and commercial sectors. This is a pattern typical of most states, because they rely heavily on natural gas-fired space heating in the winter months. Industrial consumption, on the other hand, is driven more by macroeconomic and industry-specific factors than seasonal demand for space heating,

Population-Weighted Heating Degree Days Seasonal Total Cumulative Deviations from NOAA Normals (%)

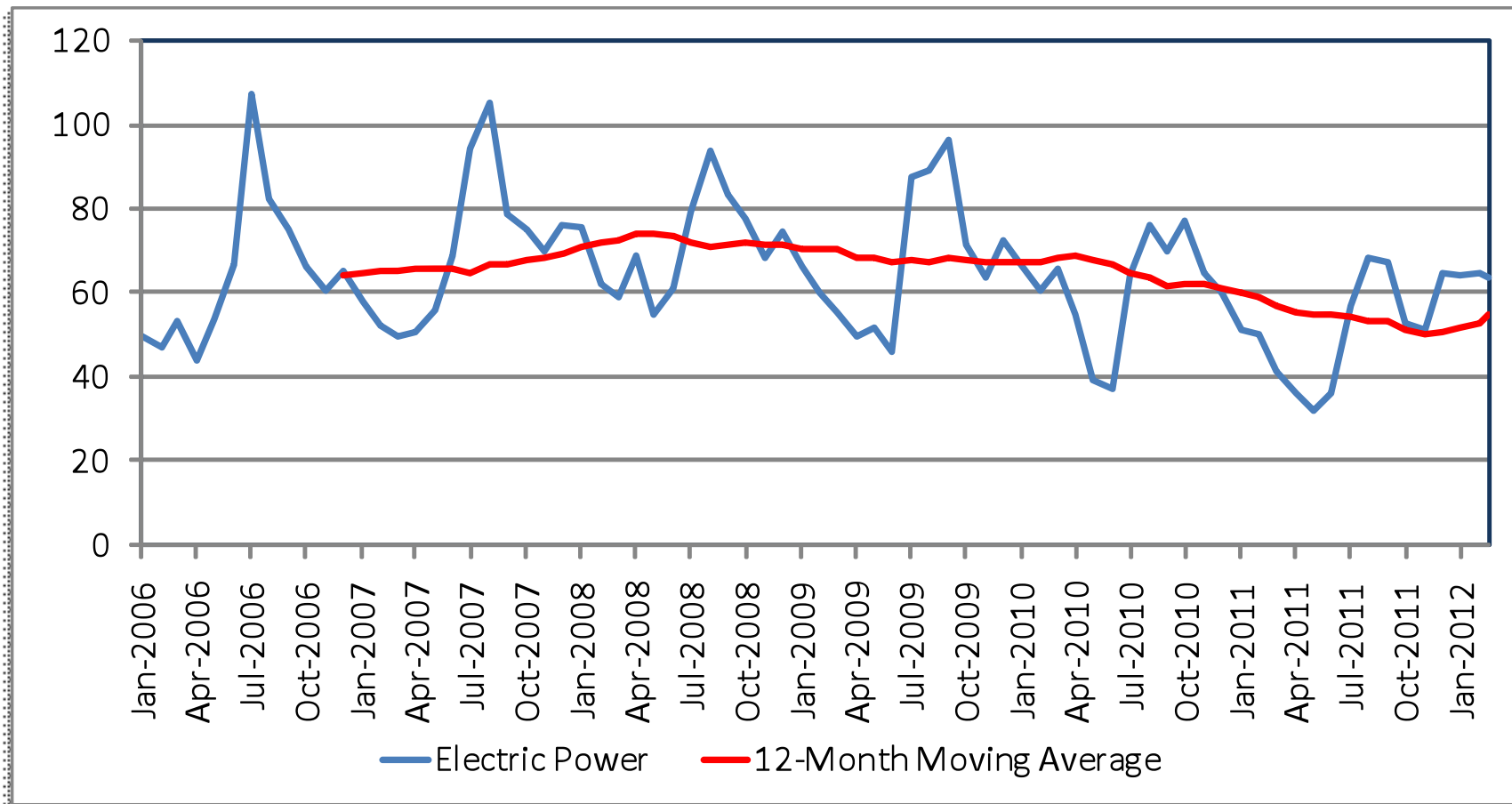
(Source: U.S. NOAA Climate Prediction Center)



Unusually warm winters in California – and across the Western U.S. – in 2006, 2007 and 2009 had no apparent effect on California gas demand for space heating, which is one of the largest uses for gas in the residential and commercial sectors.

Natural Gas Deliveries to the California Electric Power Generation Sector, January 2006 – March 2012 (Bcf/month)

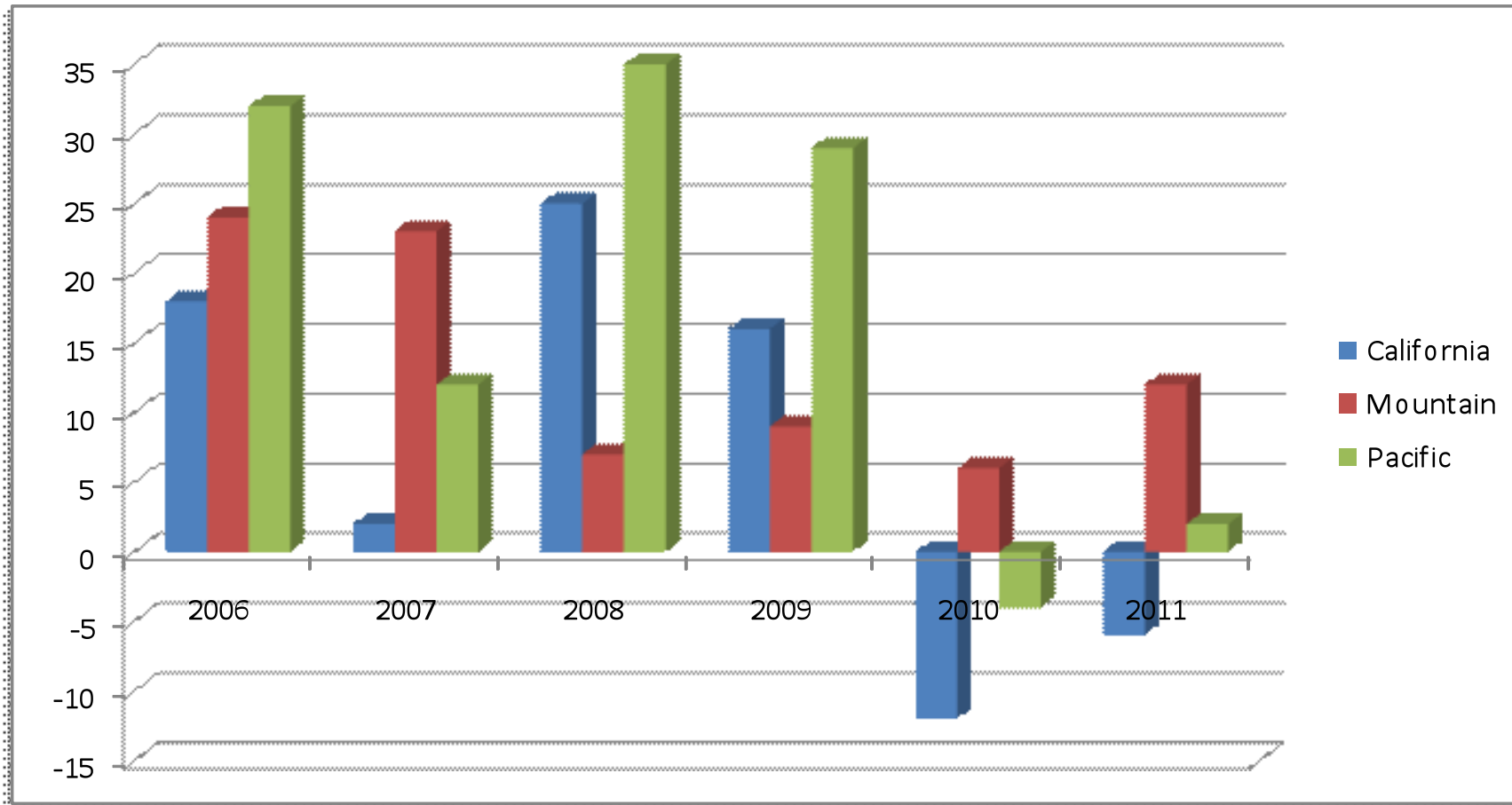
(Source: U.S. EIA May 2012 Natural Gas Monthly)



Power plant gas demand peaks in the summers as these plants provide electricity to increasing air conditioning load. One might expect cooler summers to account for declining peak gas demand. This sector's gas demand hit high peaks in 2006 and 2007, then both peak and trough demand slid in the outer years.

Population-Weighted Cooling Degree Days Seasonal Total Cumulative Deviations from NOAA Normals (%)

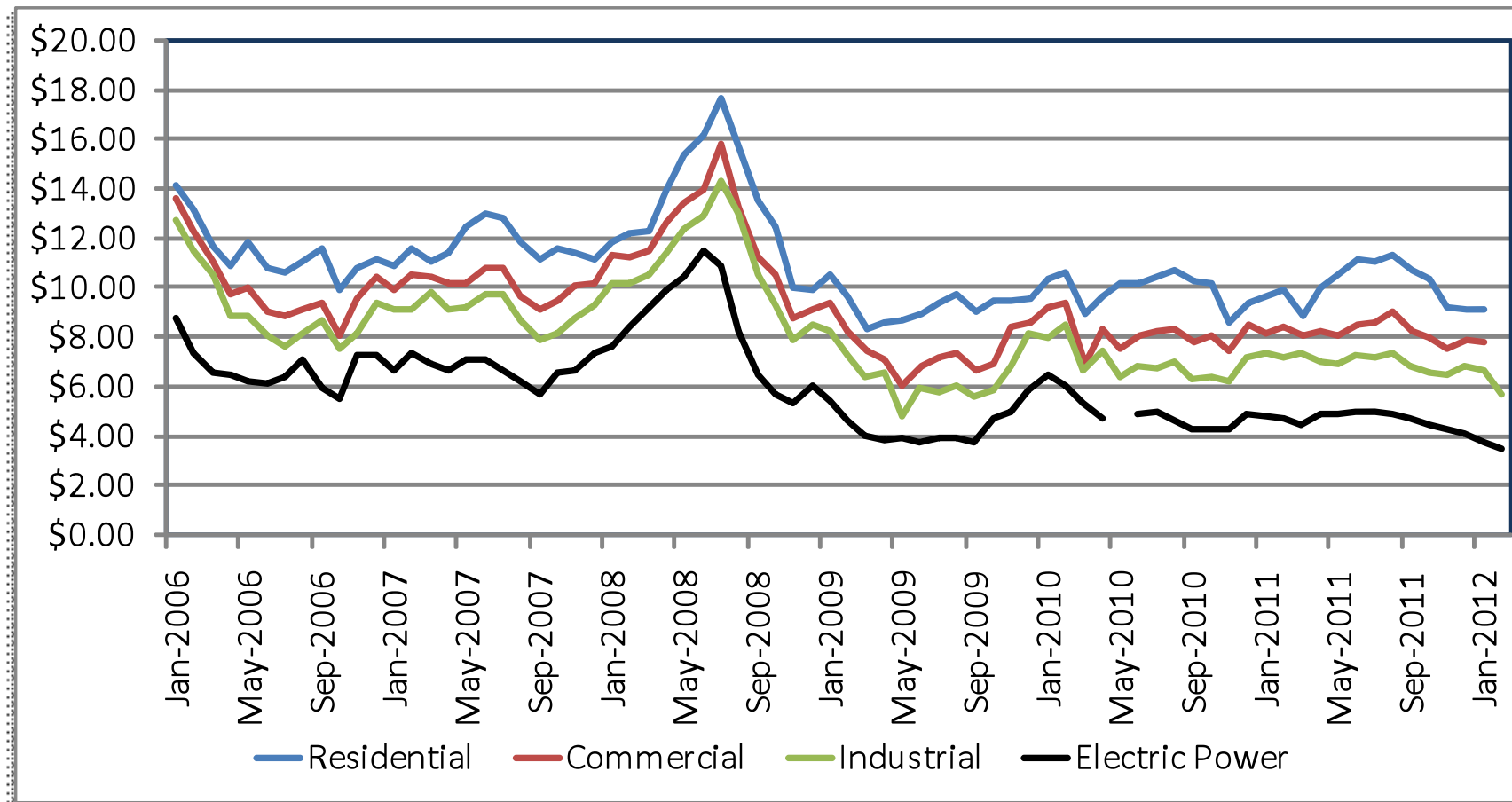
(Source: U.S. NOAA Climate Prediction Center)



California is integrated into the western North American electric grid; therefore, cooling degree data from the Mountain and Pacific Census divisions best approximates the same geographic area. California CDDs are added to show the state's influence over the larger Pacific Division.

Natural Gas Prices for California Residential, Commercial and Industrial Consumers, January 2006 – March 2012 (\$/Mcf)

(Source: U.S. EIA May 2012 Natural Gas Monthly)

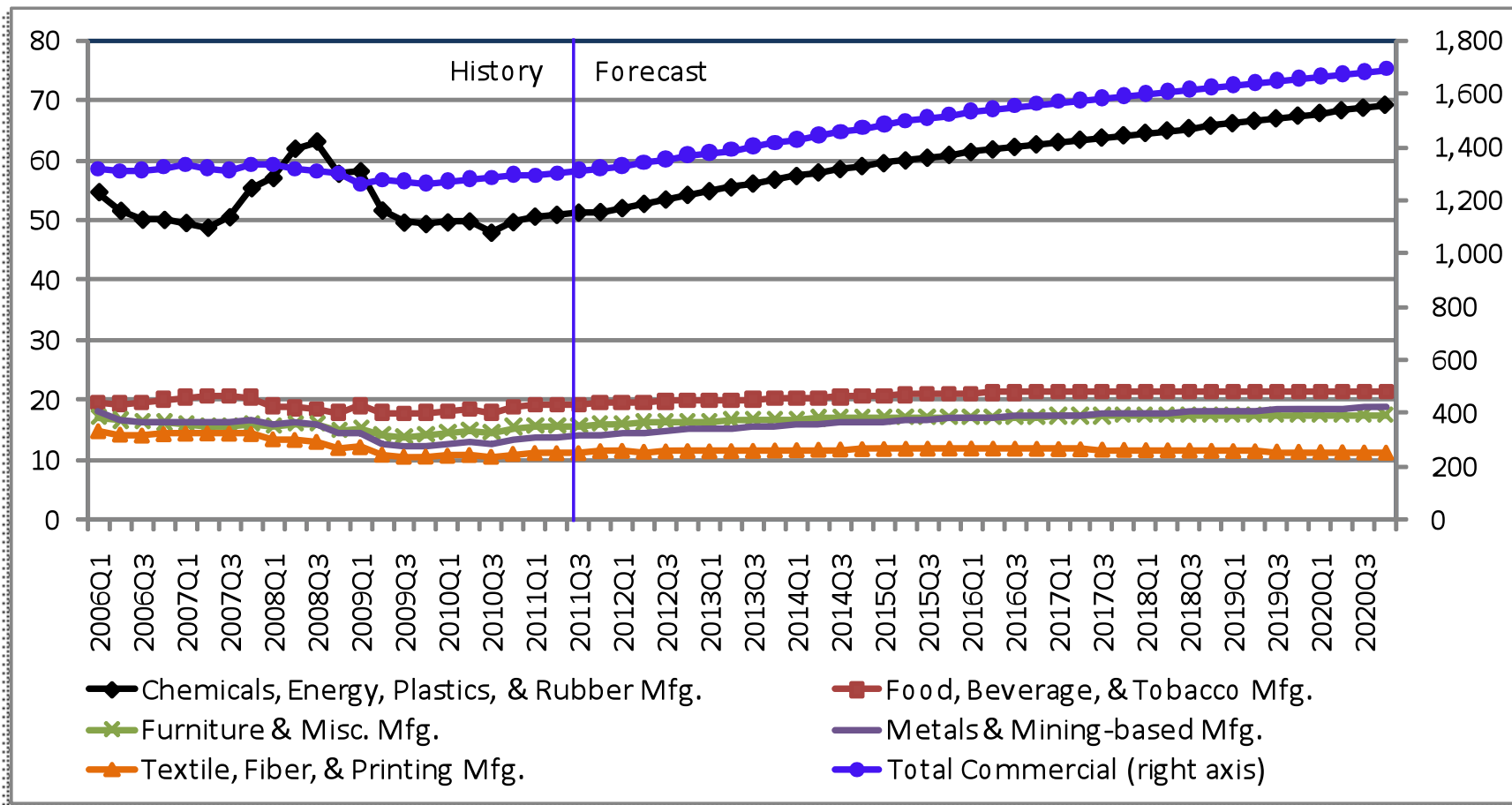


Gas prices are another major factor in U.S. residential, commercial and industrial demand. These prices, from EIA surveys, suggest no apparent influence on California consumers in any of these three sectors.

California Real Industrial Gross State Product, 2006 – 2020

(Billions Chained 2005 \$, SAAR)

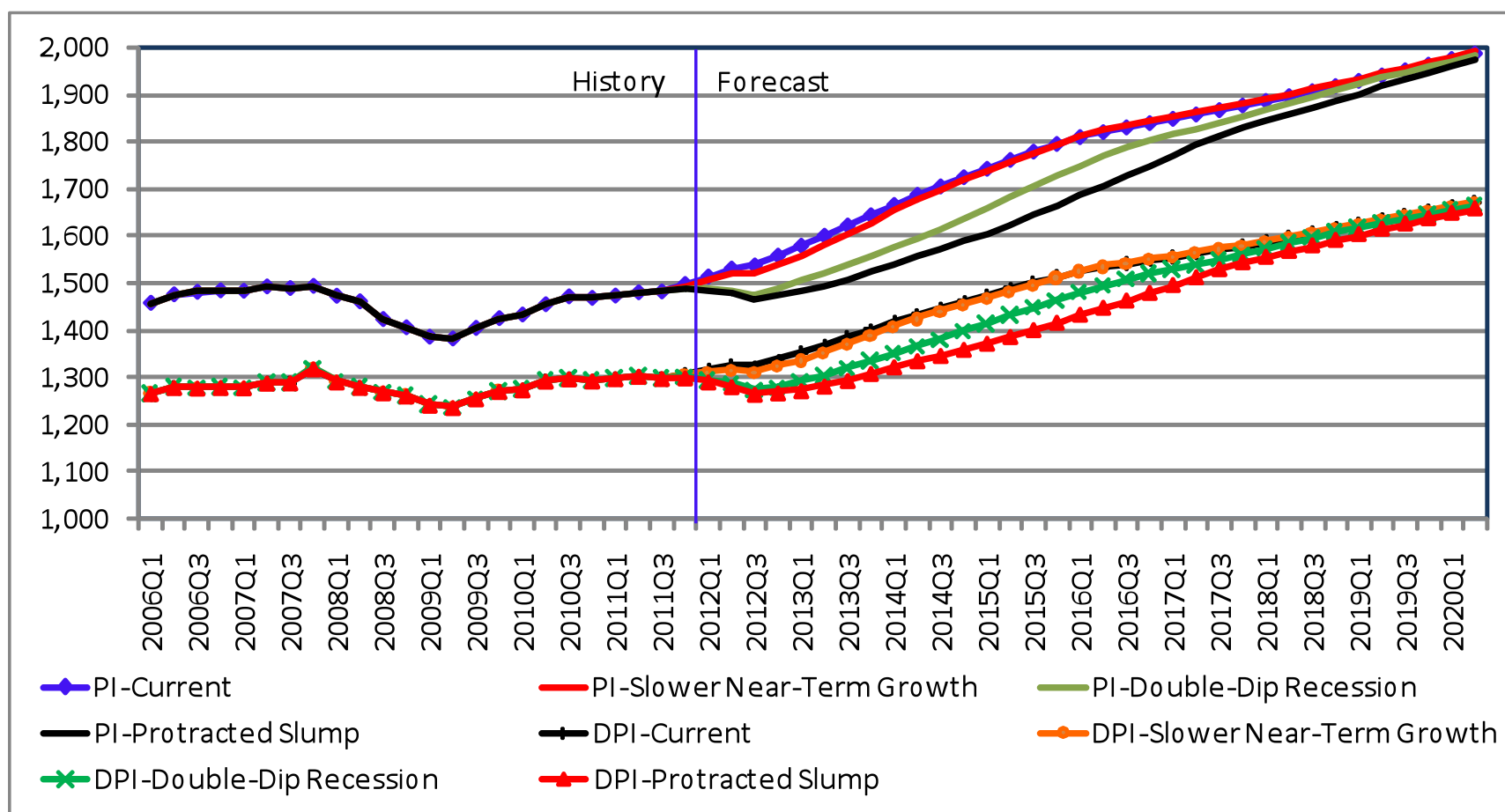
(Source: Moody's Analytics)



These are California's largest industrial natural gas-consuming subsectors, plus total commercial sector GSP. The historical trends here, like the industrial and commercial gas demand curves in Slide 2, are both mostly flat.

California Real Disposable Personal Income: Four Scenarios, 2006 – 2011 (Billions Chained 2005 \$, SAAR)

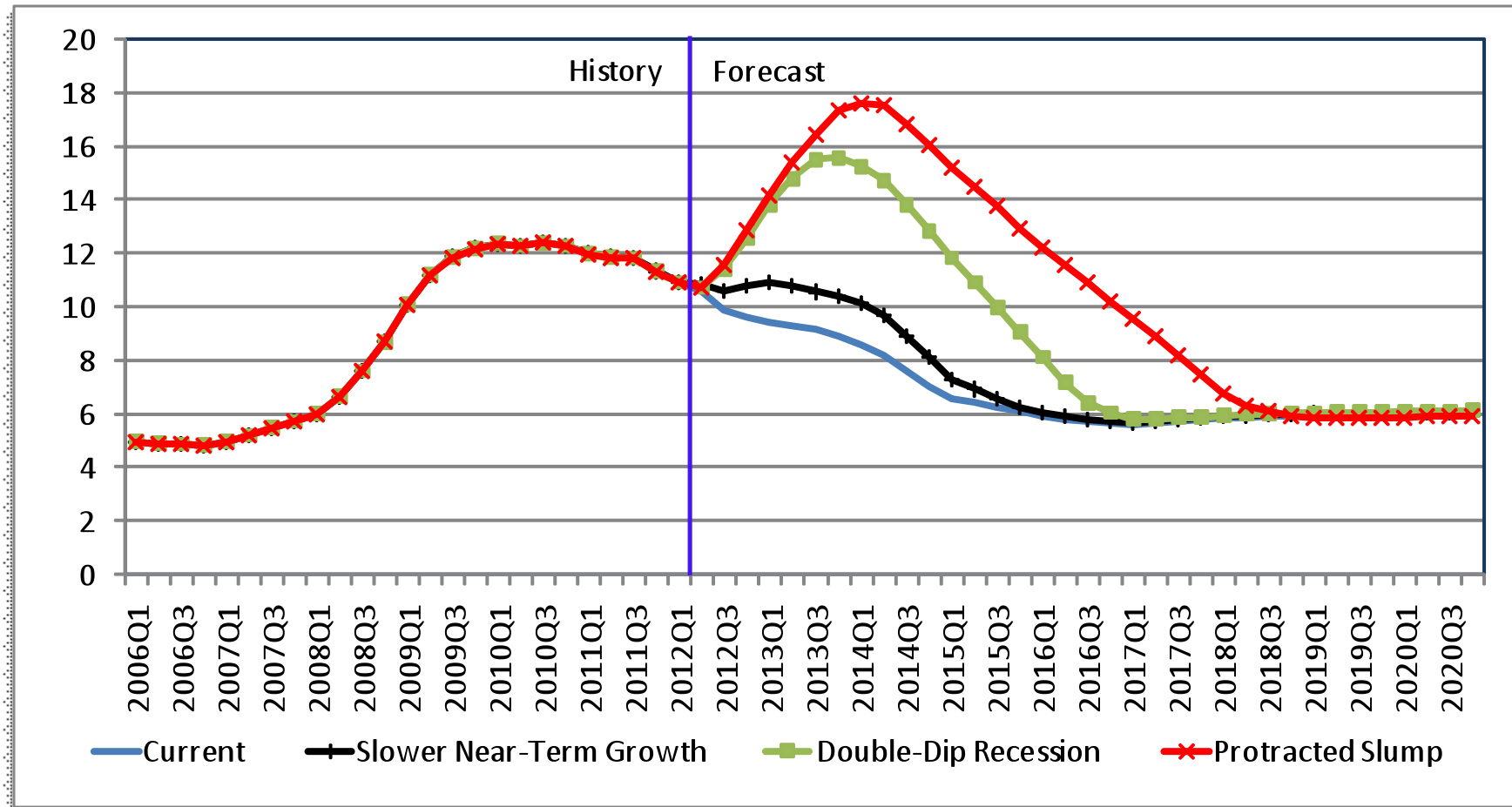
(Source: Moody's Analytics)



Falling personal income and disposable personal income appear to have depressed Residential and Commercial gas demand beginning in the Winter of 2008. Pessimistic Moody's Analytics scenarios mostly depress income forecasts until late this year.

California Unemployment: Four Scenarios, 2006 – 2011 (% , SA)

(Source: Moody's Analytics)



Depressed Residential and Commercial gas demand beginning the Winter of 2008 could have been due in part to California's unemployment rate more than doubling over the same period. The assumptions for the two worst Moody's Analytics scenarios involve developments like a deepening of the Eurozone crisis, bank insolvencies, a congressional budget impasse, Middle East strife, etc.



Questions?